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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,090	08/21/2003	Jerry Ihor Tustaniwskyi	550,692	1738

7590 07/05/2005

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EXAMINER
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DATSKOVSKIY, MICHAEL V

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/647,090		TUSTANIWSKYI ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Michael V. Datskovskiy		2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 5 - 9 are objected to because of the following informalities: Claim 5 claims a control signal, while claim 6 claims control means (which actually produces such a control signal). Examiner suggests to renumber claim 6 as claim 5 and make it dependent on claim 2, and to renumber claim 5 as claim 6 and make it dependent on claim 5. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Cader et al (US 2004/0032274 A1).

In regard to claim 1: Cader et al teach a system, Fig. 3, for maintaining an IC-module 360 near a set-point temperature while electrical power dissipation in said IC-module

Art Unit: 2835

360 is varied, said system comprising: a container 325 having an open end and with seal 330 for pressing against said IC-module 360; a plurality of spaced-apart nozzles 315 in said container 325 for spraying a liquid coolant on said IC-module 360 when said seal 330 is pressed against said IC-module 360; and a pressure reducing means 365, coupled to said container 325, for producing a sub-atmospheric pressure between said container and said IC-module when said seal is pressed against said IC-module (See paragraphs [0035] – [0040]). In regard to claims 2-4: Cader et al teach furthermore: said pressure reducing means are calculated according to the characteristics of the cooling fluid used(which could be water: see paragraph [0046]), and the boiling point desired. In regard to claim 12: Cader et al teach furthermore: said seal 330 is shaped to encircle a surface an exposed surface of an IC-chip of said IC-module 360.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cader et al.

Art Unit: 2835

Cader et al teach all the limitations of the claim except said IC-module is enclosed by a cover enclosing an IC-chip and said seal is pressed against said cover of said IC-module. It would have been obvious to one ordinary skilled in the art at the time invention was made to use a system for maintaining an IC-module near a set-point temperature described by Cader et al for testing an IC-module either having a cover or without a cover, having an exposed IC-chip, since applicant has not disclosed that a type of the IC-module (covered or not) solves any stated problem or is for any particular purpose and it appears that the invention by Cader et al (as well as the proposed invention) would perform equally well with any kind of an IC-module being tested.

6. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cader et al in view of Patel et al (US Patent 6,550,263).

Cader et al teach all the limitations of the claims except said system includes an incremental droplets control system (described in the specification of the instant application as used for ink-jets control in printers), wherein said control system including a close d-loop control means for receiving a sensor signal about a temperature of said IC-module and sending a control signal based on said IC-module temperature to all or a specific quantity from just one (claims 5, 10) to all of said spray nozzles (claim 6) allowing said spray nozzles to eject a single droplet (claim 5), or multiple nozzles to eject simultaneously with a frequency increasing corresponding to increase of said temperature (claims 7, 11). Cader et al also do not teach each nozzle ejecting droplets by squeezing a coolant with a piezoelectric device (claim 8) or by heating said coolant

Art Unit: 2835

with an electric heater (claim 9). Patel et al teach a spray cooling system for IC-modules comprising: an incremental droplets control system (described in the specification as used for ink-jets control in printers. See Abstract), said control system including a closed-loop control means for receiving a sensor signal about a temperature of said IC-module and sending a control signal (col. 5, lines 37-44) based on said IC-module temperature (col. 6, lines 54-61) to all or a specific quantity from just one (col. 6, lines 34-35) to all of said spray nozzles (Col. 6, lines 35-38) allowing said spray nozzles to eject a single droplet or multiple nozzles to eject simultaneously with a frequency increasing corresponding to increase of said temperature and vaporize all of the cooling fluid (col. 5, lines 30-35). Cader et al also do not teach each nozzle ejecting droplets by squeezing a coolant with a piezoelectric device or by heating said coolant with an electric heater (col. 6, lines 42-54). It would have been obvious to one ordinary skilled in the art at the time invention was made to use a system for maintaining an IC-module near a set-point temperature described by Patel et al in the device by Cader et al in order to make said cooling system more accurate, reliable and cost-efficient.

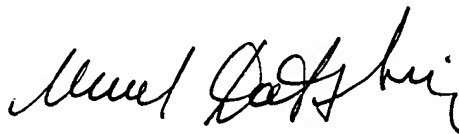
7. The prior art made of record provided in the PTO-Form 892 and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Datskovskiy whose telephone number is (571) 272-2040. The examiner can normally be reached on 8-4:30.

Art Unit: 2835

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael V Datskovskiy  
Primary Examiner  
Art Unit 2835

06/29/2005